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**Name of Organization:** Michigan Department of Natural Resources

**Type of Organization:** State

**Contact Information:** Ms. Kim Herman  
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**Project Title:** Warren Woods Natural Area Management Planning & Restoration

**Project Category:** Habitat (Ecological) Protection and Rest

**Rank by Organization (if applicable):** 0

**Total Funding Requested (\$):** 104,000 **Project Duration:** 2 Years

**Abstract:**

Warren Woods Natural Area and National Natural Landmark (312 acres) is one of few significant remnant old growth beech-maple forests remaining in the Great Lakes Region. The Galien River bisects Warren Woods in Berrien County, Michigan. The Michigan Natural Features Inventory recognizes two high quality natural communities, Southern Floodplain Forest and Mesic Southern Forest and 14 species of interest from Warren Woods. In 1996, a 100-year flood event caused damage to agricultural lands within the Galien River Watershed, prompting measures by the Berrien County Drain Commissioner to alleviate flooding of the Galien River. This project seeks to highlight the importance of Warren Woods and the Galien River Watershed while seeking solutions to flooding that will sustain the biodiversity of Warren Woods and the Galien River Floodplain. Expected outcomes are: 1.) to complete a detailed biological inventory of Warren Woods Natural Area; 2.) develop a management and restoration plan for Warren Woods Natural Area, and 3.) to have informed public and landowners that recognizes the importance of and need to steward Warren Woods as well as their own property within the watershed. We will give local landowners opportunities to meet the experts (biologists) so they begin to think about their property and are open to a future ecological inventory of the entire watershed. Our goal is for landowners to recognize they have a significant resource on their property and to cultivate them for taking them up the protection curve from knowledge to commitment to protect their land. 4.) We will use this effort to convene a team to develop a proposal for a comprehensive Galien River Watershed Management Plan. The Watershed Plan will emphasize solutions to flood control that will be compatible with sustaining the biological diversity along the Galien River and its tributaries.

**Geographic Areas Affected by the Project****States:**

<input type="checkbox"/> Illinois	<input type="checkbox"/> New York
<input type="checkbox"/> Indiana	<input type="checkbox"/> Pennsylvania
<input checked="" type="checkbox"/> Michigan	<input type="checkbox"/> Wisconsin
<input type="checkbox"/> Minnesota	<input type="checkbox"/> Ohio

**Lakes:**

<input type="checkbox"/> Superior	<input type="checkbox"/> Erie
<input type="checkbox"/> Huron	<input type="checkbox"/> Ontario
<input checked="" type="checkbox"/> Michigan	<input type="checkbox"/> All Lakes

**Geographic Initiatives:**

<input checked="" type="checkbox"/> Greater Chicago	<input type="checkbox"/> NE Ohio	<input type="checkbox"/> NW Indiana	<input type="checkbox"/> SE Michigan	<input type="checkbox"/> Lake St. Clair
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**Primary Affected Area of Concern:** Not Applicable**Other Affected Areas of Concern:*****For Habitat Projects Only:*****Primary Affected Biodiversity Investment Area:** Not Applicable**Other Affected Biodiversity Investment Areas:****Problem Statement:**

Warren Woods Natural Area and National Natural Landmark (312 acres) is one of few significant remnant old growth beech-maple forest remaining in the Great Lakes Region. Located in southwest Michigan, along the Galien River in Berrien County, Warren Woods is two hours from Chicago and receives up to 150,000 visitors a year. The Michigan Natural Features Inventory recognizes two high quality natural communities, Southern Floodplain Forest and Mesic Southern Forest, and 14 species of interest from Warren Woods. Threatened (T) or Special Concern (SC) plants include: Valerianella chenopodiifolia (T) Goosefoot Corn-Salad, Trillium recurvatum (T) Prairie Trillium, Silphium perfoliatum (T) Cup-Plant, Morus rubra (T), Red mulberry, Hybanthus concolor (SC) Green Violet, Diarrhena americana (T) Beak Grass, Chasmanthium latifolium (T) Wild-Oats, Carex davisii (SC) Davis' Sedge, Carex crus-corvi (T) Ravens-Foot Sedge. Animals of interest include: Dendroica dominica (T) Yellow-Throated Warbler, Trachopteryx thoreyi (SC Insect) Grey Petaltail, Microtus pinetorum (SC) Woodland Vole, Microtus orchrogaster (Endangered) Prairie Vole, Pomatiopsis cincinnatiensis (SC Snail) Brown Walker. Warren Woods is not only rich floristically but is known as an important area for migrating and nesting forest interior birds.

In 1996, a 100-year flood event occurred in southwest Michigan causing about \$7 million in flood damage to the farmers of Berrien County. Although \$50,000 of this damage occurred in the upstream reaches of the Galien River, this prompted the Berrien County Drain Commissioner to seek funds to remove 200 logjams over 16 miles of the Galien River. Recently the Michigan Department of Natural Resources (MDNR) Natural Areas Program and the MDNR Parks and Recreation Bureau denied permission for the removal of about 50 log jams in the Warren Woods portion of the Galien River, citing degradation to the natural area and potential impacts to state protected species.

A US Army Corps of Engineers hydrologic review found the 1996 flood damage along the Galien River resulted from the failure to move water effectively from farm fields and not from decreased capacity of the Galien River floodplain. Paradoxically in the spring of 1999, water in the Warren Woods/Galien River floodplain inundated upland vegetation (beech and maples) which had never been flooded in recent memory. This 1999 observation suggests Warren Woods and the Galien River ecosystem will slowly degrade from decreased cool water base-flow (ground water infiltration) and increased inputs of warm storm water. Although the flood plain can handle periodic 100 year flood events, biannual, incremental increases of surface water run-off will not only over time decrease the extent of the rich upland beech maple woods, but also decrease the quality and richness of the native biota in the existing southern flood plain forest. Other threats to Warren Woods biodiversity include the presence of Alliaria petiolata or garlic mustard an aggressive invader of woodlands. Garlic mustard is now established at Warren Woods and is spreading from the road-sides and into the floodplain. Off site changes in land use may also be negatively impacting Warren Woods Natural Area.

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**Proposed Work Outcome:**

The outcomes for the Warren Woods Natural Area Management Planning and Restoration Project are: 1.) a detailed biological inventory of Warren Woods Natural Area; 2.) a management, restoration and implementation plan 3) increased local understanding of the importance of Warren Woods with local support and commitment for Warren Woods protection and stewardship and 4) development of a proposal for a Galien River Watershed Plan. A Galien River Watershed Plan and its implementation will be the only long-term solution for the continued viability of the Warren Woods ecosystem. 5.) Kim Herman, Stewardship and Natural Areas Coordinator for the MDNR Natural Heritage Program or Ray Fahlsing, MDNR Parks Stewardship Program Coordinator will be administering the contractual work on this project.

1.) A comprehensive biological inventory of Warren Woods Natural Area will include a botanical inventory which can be compared to Cecil Billington's 1925 flora of Warren Woods; fine scale surveying and mapping of natural communities, a breeding bird survey; and a survey for reptiles and amphibians in the terrestrial communities. An aquatic inventory in the Galien River portion of Warren Woods will include surveys for aquatic invertebrates (insects), mussels, snails, fish and a characterization of the physical stream characteristics.

2.) The comprehensive management and restoration plan will be modeled after the Lyman Woods Master Plan, DuPage County Forest Preserve District, IL. The plan will utilize information from the baseline biological inventories, in addition to compiling and mapping existing information on Warren Woods Natural Area. Of primary importance will be the delineation of the topography and sub-watersheds within Warren Woods. The management plan will formally document the significance of Warren Woods Natural Area. In addition ecological threats, restoration goals and implementation costs will be identified. The plan will be a compelling document and provide needed impetus to the MDNR and the local community to take action on the protection, management and restoration of Warren Woods.

3.) This outcome is to have informed public and landowners that recognize the importance of and need to steward Warren Woods as well as their own property within the watershed. We will give local landowners opportunities to meet the experts (biologists) doing the inventories at Warren Woods, so they begin to think about their own property and are open to a future ecological inventory of the entire watershed. Our goal is for landowners to recognize they have a significant resource on their property and to cultivate them for taking them up the protection curve from knowledge to commitment to protect their land.

Increased local interest and support for Warren Woods will be accomplished by working cooperatively with Margaret Kohring, Midwest Director for The Conservation Fund. Ms. Kohring will send personal invitations to all property owners living within Three Oaks Township and along the Galien River to a series of field visits within Warren Woods. The field visits will be led separately by a knowledgeable and engaging botanist, ornithologist, aquatic zoologist and herpetologist. The experts will be expected to "tickle- the- toes" of the landowners, to excite them and move them to action on a place they love. The field trips will give us time to build non-threatening relationships with the landowners so they recognize the watershed team members when meeting with them individually on future projects.

4.) A team will be convened to develop a proposal for a Galien River Watershed Management Plan. The Watershed is comprised of two branches of the Galien River, the northern branch originating in Michigan and the south branch near LaPorte, Indiana. At a minimum the team will consist of representatives from the Berrien County Drain Commissioner, the Galien River Watershed District, Berrien County Planning Commission, The Conservation Fund, MDNR - Natural Heritage Program, Fisheries Division, and Parks and Recreation Bureau, Indiana DNR, Michigan Department of Environmental Quality, The Southwest Michigan Land Conservancy, The Nature Conservancy - Michigan and Indiana Chapters, US Army Corps of Engineers, consulting engineers and biologists.

A skilled and unaffiliated facilitator will be required to organize, run the meeting(s) and finalize a watershed management plan proposal. The team will identify available information, the elements of a proposal and possible funding sources. The Warren Woods efforts will become a case study to help focus interest on the importance of biodiversity within the Galien River Watershed while seeking sustainable short and long-term solutions to flooding. Examples of solutions include identification of remnant and restorable plant communities and habitat restoration and the use of native plant buffer strips in the the upstream reaches of the Galien River. Warren Wood's rich flora and fauna will continue to be compromised without seeking and implementing solutions for water management in the watershed as a whole.

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<b>Project Milestones:</b>	<b>Dates:</b>
Project Start - Consultant Selection	09/2000
Field prep., Land Owner Database	12/2000
Field Work, Mapping, Field Trips Begun	04/2001
Inventories and Mapping Completed	10/2001
Data Analysis and Planning In Progress	12/2001
Final Inventory Reports	04/2002
Draft Mangmnt Plan, Team Mtngs	08/2002
Project End - Final Reports & Proposal	12/2002

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☒ Project Addresses Environmental Justice

**If So, Description of How:**

The socio-economic profile in rural areas near Warren Woods contrast strongly with the Lake Michigan shoreline community who are primarily seasonal residents from the upper-middle class urban Chicago area. The average annual income of residents in Weesaw Township is \$19,000 and dependent primarily on agriculture. Berrien County as a whole is growing, particularly along the I-94 and US-31 corridors. A Native American run casino is also slated for development near the interchange of US-12 and I-94 and along a tributary to the Galien River. Each entity has its own relationship to the area and values Warren Woods for very different reasons. This project seek to reach out to the local rural community living near Warren Woods Natural Area, to engage them positively, move slowly and seek their support for the continued conservation of Warren Woods. These will be the same people who will be important to the future development of a comprehensive management plan for the Galien River Watershed

☒ Project Addresses Education/Outreach

**If So, Description of How:**

One outcome is to have informed public and landowners that recognize the importance of and need to steward Warren Woods as well as their own property within the watershed. We will give local landowners opportunities to meet the experts (biologists) doing the inventories at Warren Woods, so they begin to think about their own property and are open to a future ecological inventory of the entire watershed. Our goal is for landowners to recognize they have a significant resource on their property and to cultivate them for taking them up the protection curve from knowledge to commitment to protect their land. Increased local interest and support for Warren Woods will be accomplished by working cooperatively with Margaret Kohring, Midwest Director for The Conservation Fund. Ms. Kohring will send personal invitations to all property owners living within Three Oaks Township and along the Galien River to a series of field visits within Warren Woods. The field visits will be led separately by a knowledgeable and engaging experts in botany, ornithology, aquatic zoology and herpetology. The biologists will be expected to "tickle- the- toes" of the landowners, to excite them and move them to action on a place they love. The field trips will give us time to build non-threatening relationships with the landowners so they recognize the watershed team members when meeting with them individually on future projects. The success of this component will depend on treating people with mutual respect and successful trust building with local landowners.

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**Project Budget:**

	<b>Federal Share Requested (\$)</b>	<b>Applicant's Share (\$)</b>
<b>Personnel:</b>	0	20,000
<b>Fringe:</b>	0	0
<b>Travel:</b>	0	0
<b>Equipment:</b>	0	0
<b>Supplies:</b>	1,000	0
<b>Contracts:</b>	103,000	0
<b>Construction:</b>	0	0
<b>Other:</b>	0	0
<b>Total Direct Costs:</b>	104,000	20,000
<b>Indirect Costs:</b>	0	0
<b>Total:</b>	104,000	20,000
<b>Projected Income:</b>	0	0

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**Funding by Other Organizations (Names, Amounts, Description of Commitments):**

The Michigan Department of Natural Resources is committing in-kind match in the form of personnel salaries for grant administration. The Conservation Fund is also supplying in-kind match in the form of personnel salaries for coordinating the Land Owner Contact efforts. EPA funding of this project will leverage the funding potential for the larger Galien River Watershed Management Planning project. Possible sources of funds for the development and implementation for the watershed management plan among others include: Foundations, the Clean Michigan Fund, Inland Fisheries Grants, and Conservation and Reinvestment Act funds, and the US Army Corps of Engineers cost sharing programs. We expect the Galien River Watershed Planning proposal and implementation to require a minimum of an additional \$250,000 to \$400,000.

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**Description of Collaboration/Community Based Support:**

Partners committed to this project are the MDNR Natural Heritage Program, MDNR Parks and Recreation Bureau, the Berrien County Drain Commissioner, the Galien River Watershed District, and The Conservation Fund. Margaret Kohring, Chicago Office Director of The Conservation Fund has agreed to contact landowners for the public outreach component of the project. Additional partners will be invited to participate on the watershed proposal development team. We anticipate representation from the Berrien County Planning Commission, MDNR Fisheries Division, Indiana DNR, Michigan Department of Environmental Quality, The Southwest Michigan Land Conservancy, The Nature Conservancy - Michigan and Indiana Chapters, US Army Corps of Engineers, consulting engineers and biologists.